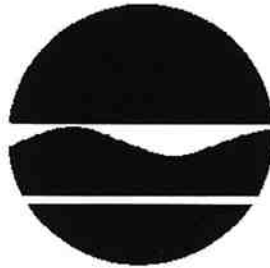


**SUPERFUND STANDBY PROGRAM
New York State
Department of Environmental Conservation
50 Wolf Road
Albany, New York 12233-7010**

SITE ID 310: STANTON FOUNDRY, INC.

SITE SUMMARY REPORT



**Onondaga Lake Project
Task 5: 104(e) Review**

**Site No. 734030-002
Work Assignment Number D003060-27**

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November 2000

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1.0 SITE DESCRIPTION

The information referenced in this report was mainly obtained from the 104(e) response of Stanton Foundry, Inc. (Stanton Foundry, Company ID 2050). One mailing was received from Stanton Foundry which was dated September 19, 1996. Information obtained from other sources is noted, as necessary.

1.1 Location

The Stanton Foundry facility (Site ID 310) is located at 3004 Milton Avenue in Solway, New York in Onondaga County. Figure 1 shows the location of the facility in relation to Onondaga Lake. The site is bound by Milton Avenue to the south (between Case Street and Bailey Street), the Frazer & Jones facility (Company ID 2038, Site ID 284) to the east, Belle Isle Road less than ½ mile to the north, and Geddes Brook less than ¼ mile to the west. The site location is shown on a USGS topographic map contained in Figure 2 herein. A site sketch included in a 1987 letter from the US Army Corps of Engineers to Stanton Foundry (Mailing No. 1, p. 000069) shows that the foundry disposed waste sand material as close as ± 20 feet east of Geddes Brook. This sketch is provided as Figure 3 herein. Based on the facility and survey maps that were provided (Mailing No. 1, pp. 000013-000014), the area of the Stanton Foundry main buildings was approximately 1.6 acres. An excerpt of the facility map showing the main Stanton Foundry and Frazer & Jones buildings is provided herein as Figure 4 (based on Mailing No. 1, p. 000014). Based on a survey map provided in Mailing No. 1 (p. 000013), it appears that the Stanton Foundry property is approximately 26 acres in size, and that it extends to Horan Road which is west of Geddes Brook (which is not on the survey map). The US Army site sketch (Figure 3) identified a channel that had been dredged by the Town of Solway crossing the site in a north-south direction. No other information on this channel, including the reason why it was dredged, was provided in the information that was available for review.

Based on the site maps that were provided, it appears that between May 12, 1975 (Mailing No. 1, p. 000014) and March 9, 1989 (Mailing No. 1, p. 000013), an administrative building was constructed to the west of the foundry building (Mailing No. 1, p. 000023). This office building had a footprint of approximately 10,000 square feet, and is shown as the white building adjacent to the Stanton Foundry main building and southeast of the Stanton Foundry Landfill in the aerial photograph (date unknown) that is provided as Figure 5 herein.

Frazer & Jones operated a landfill northeast of and adjacent to their main building and approximately 400 feet northeast of Stanton Foundry. At an unspecified date prior to July 18, 1996, disposed waste in the Frazer & Jones Landfill had been removed (TAMS, 2000a). North of the Frazer & Jones Landfill, the Village of Solvay (Company ID 2061) operated a landfill (Site ID 354) which is located approximately 1,000 feet northeast of the Stanton Foundry site beyond a freshwater wetland area. Operations at the Village of Solvay Landfill continued from the early 1950s to late 1991 (TAMS, 1999a). North of the Village of Solvay Landfill, Honeywell International, Inc., formerly AlliedSignal (Honeywell, Company ID 2010) performed landfiling operations at the Mathews Avenue Landfill (Site ID 315), which was permitted to receive waste until 1986 (TAMS, 1999b). The Mathews Avenue Landfill is located approximately 1,400 feet northeast of the Stanton Foundry site. A landfill operated by Pass & Seymour (Company ID 2042, Site ID 298) is located at the intersection of Boyd Avenue and Milton Avenue, approximately 1,200 feet to the east of the Stanton Foundry site. Pass & Seymour operated their on-site landfill between 1930 and 1972 (TAMS, 2000b). The Stanton Foundry, Frazer & Jones, Village of Solvay, and Honeywell landfills are shown in Figure 5 herein. It is not readily apparent on Figure 5, where the exact location of the Pass & Seymour Landfill was situated, however, the company indicated that it was west of its main building and parking lot (TAMS, 2000b).

1.2 Geology

The surficial geology of the Syracuse area was strongly influenced by the most recent glacial advance (Wisconsin age, 12,000 to 14,500 years ago). The area occupies a region that was covered by Lake Iroquois, a large glacial lake situated in front of the ice margin. The broad flat-lying plains situated north from Syracuse to Lake Ontario were formed beneath Lake Iroquois and are characterized by lacustrine fine sand and silt deposits. Additional glacial features common to the region are moraines, drumlins, U-shaped valleys, and meltwater channels.

Onondaga Lake and all its major tributaries lie within glacial meltwater channels. These features originally were conduits carrying meltwater at large volumes and high velocities away from the glacier. Sediment types characteristically found in meltwater channels are sands and gravels. These relict features form important water bearing and transmitting units which form an irregularly branching, net-like pattern.

The bedrock geology of the greater Syracuse area includes Lower to Middle Paleozoic age sedimentary rocks predominated by carbonate (dolostone and limestone) and shale, and containing some sandstone, siltstone, and evaporites. Bedrock directly beneath the area (as well as underneath Onondaga Lake) is Silurian Vernon Shale (Rickard and Fischer, 1970) which has low permeability, but does possess secondary porosity due to fractures. Soil boring logs were not provided by Stanton Foundry. The USDA Soil Survey of Onondaga County classifies the area's soil type as Martisco and Warners soils, and as urban land (USDA, 1977).

In 1986, Wehran Engineering prepared a Phase I investigation report for NYSDEC regarding the Frazer & Jones facility (NYSDEC, 1986). In this report (NYSDEC, 1986, p. 4-3), details were provided for geologic characteristics in the vicinity of the Frazer & Jones facility, and their findings are also likely true for Stanton Foundry which is adjacent to the Frazer & Jones facility. It was noted that the Frazer & Jones facility is located within the physiographic

boundary of the Ontario-Mohawk Lowland and is generally flat without any dominant trend to land forms. The soils in the surrounding areas are classified as Urban Land and the overburden is glacial till (USDA, 1977). Underlying the glacial till is the Middle Shale unit consisting of the 350-foot thick Camillus Shale formation, which is underlain by the 500-foot thick Vernon Shale formation. The Camillus Shale consists of grey thin-bedded shale, gypsum beds, salt, and dolomite. The Vernon Shale consists of red soft shale, beds of green shale, gypsum, and dolomite.

1.3 Hydrogeology

According to the Syracuse West USGS topographic map, the ground surface elevation at the Stanton Foundry site is approximately 415 feet NGVD (see Figure 2). Groundwater elevation data were not provided by Stanton Foundry. Shallow groundwater is expected to flow towards Geddes Brook (approximate elevation 400 feet NGVD) to the north and northwest based on the ground surface contours shown on the Syracuse West USGS map. It was noted in Stanton Foundry's mailing that there is a wetland area located on the property which implies a saturated soil condition for at least part of the year. This area is partially shown on the US Army Corps of Engineers site sketch that was provided, and extends to the north and northwest off-site (see Figure 3). A wetland delineation map was not provided by Stanton Foundry, however, the land was confirmed to be a freshwater wetland in a June 17, 1980 NYSDEC interoffice memorandum and subsequent correspondences with Stanton Foundry instructing the facility on wetland permit regulations. Residences and businesses in the vicinity of Stanton Foundry use the public water supply system as their water source, and do not maintain private wells (Mailing No. 1, p. 000020).

As noted in the Phase I Report that was prepared regarding the nearby Frazer & Jones facility (NYSDEC, 1986), overburden in the area consists of glacial till and is not considered a significant water bearing unit. Estimated well yield within the till is between 0.1 and 2 gallons per minute (gpm). It was also noted in the Phase I Report that Allied Chemical (currently Honeywell), which was located approximately one mile northeast of the site, had

three wells in the Middle Shale formation, with depths ranging from 200 to 300 feet below the ground surface. At the Allied Chemical wells, the depth to bedrock was between 10 and 30 feet, and the depth to groundwater was between 10 and 56 feet below the ground surface. The reported well yield was between 100 and 245 gpm. Typically, the water quality in this area is hard and contains elevated sulfate levels. The Phase I Report also states that the Frazer & Jones facility is located in a region where “salty groundwater is likely to occur within the upper 100 feet of bedrock” (NYSDEC, 1986, p. 4-3). A NYSDEC summary of the Frazer & Jones site noted that the depth to groundwater at the facility was between 10 and 30 feet (NYSDEC Additions/Changes to Registry of Inactive Hazardous Waste Disposal Sites, 1991).

The Frazer & Jones Landfill (see Figure 5) is located in an area that was once a freshwater wetland. It was noted in the Phase I Report (page 2 of the Hazard Ranking System [HRS] Documentation Records) that groundwater is present at the ground surface in unconsolidated deposits in the area of the landfill (TAMS, 2000a).

1.4 Surface Water Hydrology

The Stanton Foundry facility is located approximately 1.4 miles southwest of the western shore of Onondaga Lake, approximately 1,000 feet east of Geddes Brook as shown on Figure 2 herein (the foundry landfill footprint extends to approximately 20 feet east of Geddes Brook as noted on Figure 3 herein), and 2,000 feet south of the Old Erie Canal location. The facility is upgradient of these surface waters, and it is not known whether measures were taken to prevent off-site contamination by surface runoff (i.e., berms, vegetated swales, etc.).

There is a wetland area situated on the Stanton Foundry property that extends north and northwest of the facility (a wetland delineation map was not available for review). It was indicated in a 1988 site characterization report that was prepared by O'Brien & Gere Engineers, Inc. (O'Brien & Gere) that there was a drainage ditch passing through the Stanton Foundry property (Mailing No. 1, p. 000015). Although surface contours gradually slope to

the east and northeast, stormwater runoff will presumably also flow into the on-site wetland, and therefore into Geddes Brook which is hydraulically connected to the wetland, to the north and northwest. The exact location, dimensions, and current condition of the drainage ditch was not indicated in the materials that were available for review, however, it is likely that the ditch drains into the nearby wetland area. A "dredged channel," which is located to the east of the landfill area, is indicated on a US Army Corps of Engineer site sketch (see Figure 3), and is possibly the same drainage way that was previously referred to by Stanton Foundry as a drainage ditch. This dredged channel was constructed in a north-south direction adjacent to the landfill as shown on Figure 3 herein.

There was no indication that a New York State Pollutant Discharge Elimination System (SPDES) Permit was required for the Stanton Foundry facility.

2.0 SITE HISTORY

2.1 Owners/Operators

Stanton Foundry (SIC Code 3321) was in operation at 3004 Milton Avenue in Solway, New York in Onondaga County between 1963 and 1988 (Mailing No. 1, p. 000004). In addition, it was noted that prior to Stanton Foundry's operations at the site, an unidentified "predecessor in interest" conducted operations at the site from approximately 1941 to 1963. Stanton Foundry merged with GPI Interim, Inc. which is presently headquartered in Deer Park, New York. The Stanton Foundry/GPI Interim, Inc. merger date was not indicated in the materials that were available for review. GPI Interim, Inc. is a wholly-owned subsidiary of Clarkson Industries located in Shelton, Connecticut.

2.2 Site Operations

Stanton Foundry indicated that "from its inception in approximately 1941 until its operations were discontinued in 1988, operations at the Facility consisted of the manufacture of grey iron castings" (EPA RCRA ID #NYD002234912) (Mailing No. 1, p. 000004). The Stanton Foundry has been non-operational since 1988, and the manufacturing buildings at the site were demolished in 1991 (Mailing No. 1, p. 000002). A description of the operations associated with the manufacture of gray iron castings is provided below, and the waste streams that were generated are discussed in Section 2.3.

- The first stage in gray iron casting manufacture was the creation of sand molds and cores (Mailing No. 1, p. 000004). Prior to the mid-1970s, molds and cores were cured in ovens, and after the mid-1970s, a "no-bake" process was used. The latter operation involved the addition of catalysts and binders (the identities of which were unspecified) to sand to cause the molds and cores to set without heat treatment.

- The second stage consisted of pouring molten iron into the molds. The molten iron was generated in the foundry's "cupola" which is a large charcoal-type furnace.
- The finishing process known as shotblasting was performed on the castings to create a smooth surface, and a rust inhibitor paint was applied. Stanton Foundry provided a Material Safety Data Sheet (MSDS) for the gray iron castings in their mailing (pp. 000042-000045). It was noted in the MSDS that cutting and grinding gray iron castings "will generate toxic dust and fumes," and the foundry maintained permitted air emission points as noted in Section 2.3 (Mailing No. 1, p. 000043). The castings contain over 85% iron (it was not specified if this is by volume), and in their solid form do not present a chemical hazard. As per the MSDS, gray iron casting also contains up to 4% carbon, 3.5% silicon, 1.5% nickel, 0.9% chromium, and 0.9% copper, among other compounds (Mailing No. 1, pp. 000042-000043). Although not explicitly mentioned in the Stanton Foundry submittal, the painting operation seems to have been conducted in a spray booth as indicated on the site map (Mailing No. 1, p. 000014).
- Waste sand, iron, and limestone slag were disposed in an on-site landfill that encompassed approximately 3.4 acres, however, descriptions of the storage and disposal procedures were not available for review.

Material Safety Data Sheets were provided in Stanton Foundry's mailing (Mailing No. 1, pp. 000046-000056) for Chem-Rez Catalyst C-2006 (toluene sulfonic acid), Chem-Rez 280 (modified furan resin), Chem-Rez 489 (phenol-formaldehyde resin), and Chem-Rez Catalyst C-2009 (benzene sulfonic acid), however, their uses at the foundry were not discussed in the documents that were available for review. Chem-Rez 280 is classified by the NY State Department of Transportation as hazardous due to combustibility, Chem-Rez 489's classification was listed as "not applicable" in the MSDS (Mailing No. 1, p. 000050), and Chem-Rez C-2009 and Chem-Rez C-2006 are classified as hazardous due to corrosivity.

2.3 Generation and Disposal of Wastes

The hazardous and non-hazardous wastes that have been generated by Stanton Foundry from the manufacture of gray iron castings, and the waste disposal methods, which include an on-site landfill, are described below. Stanton Foundry noted that gray iron castings were also manufactured at the facility by the site's previous owners between 1941 and 1963, and it is possible the same wastes (listed below) were generated during that time.

- Waste sand was the primary waste generated by foundry operations. Stanton Foundry indicated that this waste sand was a non-hazardous, industrial waste (Mailing No. 1, p. 000005). Approximately 50 tons of waste sand was generated weekly and disposed in an on-site landfill on Stanton Foundry property. A total of approximately 120,000 tons of waste sand was disposed in the on-site landfill by Stanton Foundry and its predecessor between 1941 and 1988 (Mailing No. 1, p. 000007). Tables 1 and 2 herein contain a summary of the waste data from samples of the landfilled waste sand that were collected in 1988. Based on these EP Toxicity metals results, this waste was considered non-hazardous.
- It was noted that particulates were emitted from a "sand reclaiming system," however, the details of this system were not included in the information that was available for review (Mailing No. 1, p. 000061). The catalysts and binders required for the no-bake mold-setting process were also not specified, and neither were the storage locations of these chemicals or the chemical waste disposal locations (if any).
- The shotblasting of iron castings produced air emissions which were permitted, however, the exact nature of the emissions were not legible in the NYSDEC permit that was available for review (Mailing No. 1, p. 000062).

Table 1: Monitoring Results from O'Brien & Gere Engineers Sampling of Landfilled Waste

Analytes	Sample S-1	Sample S-2	Sample S-3	Sample S-4	Sample S-5	Sample S-6 ¹	Soil or TCLP Standard ²
PCBs (Bulk soil, mg/kg)							
PCBs	NA	NA	NA	< 0.5	NA	NA	1.0
SVOCs (Bulk soil, mg/kg)							
BEHP	NA	NA	NA	0.34	NA	NA	50.0
Phenol	NA	NA	NA	0.88	NA	NA	0.03
Total Phenols	1.0	21.0	11.0	2.4	0.62	0.2	0.03 ³
Metals (EP Toxicity, mg/L)							
Arsenic	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	5.0
Barium	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	100.0
Cadmium	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	1.0
Chromium	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	5.0
Lead	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	5.0
Mercury	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.2
Selenium	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	1.0
Silver	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	5.0

Sources: Stanton Foundry Mailing No. 1, p. 000022 (from O'Brien & Gere, 1988).

Notes: Five samples (S-1 through S-5) were collected from landfilled sand material in August 1988. Sample locations are shown on Figure 6 herein (Mailing No. 1, p. 000023).

1 = Sample S-6 was considered a background soil sample.

2 = NYSDEC Recommended Soil Cleanup Objectives for PCBs, BEHP, and phenol are shown because these are bulk soil samples. For metals (EP Toxicity), the standards shown are the current TCLP standards.

3 = The value listed in this table for total phenols is the NYSDEC Recommended Soil Cleanup Objective for phenol.

NA = Not analyzed.

Table 2: Monitoring Results from Stanton Foundry Sampling of Landfilled Waste

Analytes	Sample A	Sample B	Sample C	Sample D	Sample E	Sample F	Soil or TCLP Standard ¹
SVOCs (Bulk soil, mg/kg)							
Total Phenols	20	23	3.1	1.8	2.2	6.8	0.03 ²
Metals (EP Toxicity, mg/L)							
Arsenic	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.004	5.0
Barium	0.5	0.4	< 0.3	< 0.3	< 0.3	< 0.3	100.0
Cadmium	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	1.0
Chromium	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	5.0
Lead	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	5.0
Mercury	< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004	0.0065	0.2
Selenium	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	1.0
Silver	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	5.0

Sources: Stanton Foundry Mailing No. 1, pp. 000034-000035.

Notes: Six samples (A through F) were collected from landfilled sand material in March 1988. Sample locations are shown on Figure 6 herein (Mailing No. 1, p. 000023).

1 = The NYSDEC Recommended Soil Cleanup Objective is shown for bulk soil samples. For metals (EP Toxicity), the standards shown are the current TCLP standards.

2 = The value listed in this table for total phenols is the NYSDEC Recommended Soil Cleanup Objective for phenol.

- “Very small quantities” of iron and limestone slag waste from the cupola melting process were generated, however, the exact quantity generated was not indicated in the materials that were available for review (Mailing No. 1, p. 000005). This material, which “could not be recycled,” was disposed on-site in the facility landfill.
- Paint spray booths were operated on-site, and the facility was permitted for particulate and naphthalene emissions from this source (Mailing No. 1, p. 000064). Empty paint and paint thinner containers, and used filters from the dry painting operation were generated, however the exact quantity generated was not indicated in the materials that were available for review. Empty cans and filter waste were disposed off-site.
- Metal particles were generated during the shotblasting of the iron castings, and were disposed off-site. The exact quantity that was generated was not indicated in the materials available for review.
- Dust was generated by machining, grinding, and welding operations, which mostly consisted of iron or iron oxide (castings were over 85% iron). Local exhaust ventilation was required to manage the dust. The MSDS that was provided mentions that flame cutting, arc gouging, and welding on iron castings would produce iron oxide fume, however, it was not indicated in the materials available for review whether any of these three operations were ever conducted at the Stanton Foundry facility.
- The melting furnace emitted iron oxide fumes which were permitted by NYSDEC as noted below in the Facility Permits portion of this section.
- Solid waste including wood, lumber, construction debris, and general refuse was disposed off-site. A local contractor named Fabrizzio hauled a portion of the lumber and construction debris from the facility, however, the disposal facility is not known.

Local waste haulers were contracted for general plant refuse disposal, however, the exact names of the haulers or disposal facilities that were used are no longer known to Stanton Foundry.

The on-site landfill was in operation between 1941 and 1988. In a site characterization report that was provided by Stanton Foundry, it was noted that O'Brien & Gere performed sampling on August 3, 1988 in a landfill area described as "active," implying the landfill was still in use and landfill operations were discontinued between August and December 1988 (Mailing No. 1, p. 000015). As of 1988, the landfill covered approximately 3.4 acres and contained an estimated 90,600 cubic yards, or 122,000 tons, of waste sand (Mailing No. 1, p. 000018). A site sketch that was contained in a US Army Corps of Engineers letter to Stanton Foundry dated May 28, 1987, indicates the landfill's approximate position (within 20 feet at one location) relative to Geddes Brook (Figure 3). A topographic survey was conducted on August 22, 1988 which shows the landfill's location (Figure 6 herein), however, most of the topographic information on the map is illegible (Mailing No. 1, pp. 000018, 000023).

Of the materials for which MSDS were provided in Stanton Foundry's mailing (Chem-Rez Catalyst C-2006, Chem-Rez 280, Chem-Rez 489, and Chem-Rez Catalyst C-2009), the storage and disposal details were not available for review (Mailing No. 1, pp. 000046-000056). These details, including the quantities stored on-site, conditions of the storage area, storage locations, disposal methods, and disposal facilities, were also not indicated in the documents that were available for review.

Details of the facility's off-site disposal operations (including waste transportation) were not available for review because "Stanton does not possess any records" containing this information (Mailing No. 1, p. 000005) other than a limited number of waste manifests (Mailing No. 1, pp. 000037-000041). A November 26, 1990 USEPA Acknowledgment of Notification of Hazardous Waste Activity for Stanton Foundry was also provided (Mailing No. 1, p. 000036), which corresponds to a hazardous waste shipment on November 16, 1990.

This hazardous waste shipment consisted of one 55-gallon drum of spent sulfuric acid and one 55-gallon drum of waste paint. The disposal facility was Frontier Chemical Waste Process, Inc., in Niagara Falls, New York, located outside of the Onondaga Lake basin. An analysis of this waste indicated that the transported hazardous waste had a pH less than or equal to 2, and a hexavalent chromium concentration greater than 500 mg/L (Mailing No. 1, p. 000040).

Stanton Foundry indicated that the generated wastes were not “disposed of, directly or indirectly, into Onondaga Lake” or into the municipal sewer system (Mailing No. 1, p. 000002). Sanitary waste from the facility’s bathroom area was the only waste known to have been disposed in the sanitary sewer system. In 1996, after the manufacturing areas were demolished, a concrete floor slab remained and a site inspection was conducted. It was confirmed that there were no floor drains at these locations, and that the only drains to the municipal sewer were located in the locker/wash room area.

Stanton Foundry notified NYSDEC on May 27, 1986 that there was a single 2,000-gallon underground storage tank in use that contained fuel oil (Mailing No. 1, pp. 000065-000066). It was not indicated in the information available for review whether this tank has been removed. However, based on a NYSDEC Initial Spill Report Form (see Section 4), the tank was found to be leaking and the contaminated soil was excavated. The storage tank’s exact location (between the foundry building and the administrative building, near the southwest corner of the foundry building) is shown on the site maps provided (Mailing No. 1, pp. 000013-000014).

Facility Permits

A June 17, 1980 interoffice NYSDEC memorandum indicated that Stanton Foundry was filling in the wetlands area with their landfilling operations. On August 6, 1980, NYSDEC notified Stanton Foundry that the facility could no longer continue to operate their on-site

disposal facility without first obtaining a Freshwater Wetlands permit. It was not indicated in the mailing whether a wetlands permit was issued to Stanton Foundry.

Stanton Foundry did not provide a copy of a SPDES permit for their facility, and did not state whether such a permit was ever required.

NYSDEC air emissions permits were issued for seven emission sources, including a melting furnace, sand reclaiming system, shotblasting operations, ferrous casting grinding operations, and a spray paint booth (Mailing No. 1, pp. 000057-000064). The remaining two operations that resulted in permitted air emissions (Emission Points 5 and 6) were not indicated in the materials that were available for review. On the NYSDEC permits that were available (Emission Points 1, 2A, 3, 4, and 7) and legible, it was noted that the contaminants being emitted were particulates, naphthalene, and iron oxide. Four of the seven emission points were permitted until the facility was closed in 1988, and three (Emission Points 2, 5, and 6) were removed from service on October 29, 1987. The relation between Emission Points 2 and 2A were not indicated in the permits and correspondences that were available for review regarding these emissions (Mailing No. 1, pp. 000057-000060).

As noted earlier, only sanitary wastewater was discharged to the municipal wastewater system, and an Onondaga County Department of Drainage and Sanitation (OCDDS) Industrial Wastewater Discharge Permit was not issued.

3.0 POTENTIAL PATHWAYS FOR RELEASE OF HAZARDOUS SUBSTANCES TO THE LAKE SYSTEM

3.1 Soil

Soil on the Stanton Foundry site could have been contaminated directly from the on-site disposal of manufacturing wastes, and by spills during chemical and waste storage and handling. Landfill operations were the only occurrences of deliberate waste application to the soil that were described by Stanton Foundry. Stanton Foundry's manufacturing areas were not equipped with floor drains, and the only drains noted were connected to the municipal sewer in the locker/wash room area (Mailing No. 1, p. 000002). An accidental fuel oil spill and the unpermitted application of foundry waste to the neighboring wetland are discussed in Section 4.1.

A characterization analysis was performed on the landfilled material by O'Brien & Gere on behalf of Stanton Foundry in 1988. As part of this characterization, waste sand samples were collected by Stanton Foundry personnel on March 25, 1988, and soil and sand samples were collected by O'Brien & Gere on August 3, 1988. A sample location map was provided by Stanton Foundry and is included as Figure 6 herein (Mailing No. 1, p. 000023). The results of the limited analyses performed on these samples are discussed in Sections 2.3 and 4.2.1.

Soil boring results were not provided by Stanton Foundry, however, a soil sample was collected from the bank of an on-site drainage ditch which passes through the foundry's property (Mailing No. 1, p. 000015). The location of the ditch, if different than the "dredged channel" shown on the Army Corps of Engineers site sketch (Figure 3) was not indicated in the sample location map that was provided by Stanton Foundry.

A paint spray booth area, situated on a concrete foundation, was indicated on the site map provided. This area is shown in Section C-C, Building No. 2 on the building plan (Mailing

No. 1, p. 000014). Therefore, the indoor painting operation was likely not a potential pathway of contaminant release to the soil unless spills migrated through the floor slab.

3.2 Surface Water

The Stanton Foundry facility was located approximately 1,000 feet east of Geddes Brook, with the on-site landfill footprint extending as close as 20 feet east of Geddes Brook (Mailing No. 1, p. 000069). The site is located approximately 2.5 miles upgradient of Onondaga Lake based on flow from Geddes Brook into Ninemile Creek (see Figure 1 herein). The Old Erie Canal is situated approximately 1,500 feet north of the site. A freshwater wetland is located on-site, and extends along Geddes Brook north, west, and south of the facility.

Contaminated stormwater from this facility and its landfill is a potential source of pollutants to off-site surface waters. The facility is upgradient of Geddes Brook, Ninemile Creek, and Onondaga Lake and it is not known whether measures were taken to prevent off-site contamination from surface runoff (i.e., berms, vegetated swales, etc.). Stormwater that came into contact with landfilled waste during the years the landfill was in operation (1941-1988) would likely have flowed into the on-site wetlands and Geddes Brook. It was noted in the Stanton Foundry analysis of its on-site disposal area that there is a drainage ditch passing through its property (Mailing No. 1, p. 000015). The dimensions, exact location, dates of operation, and current condition of this ditch were not indicated in the documents available for review.

Stanton Foundry performed surface water sampling from standing water located near the “toe of the sand fill” in their on-site landfill area (Mailing No. 1, p. 000015). As noted in Section 4.2, only a limited number of analytes were considered in this sample event, and of those considered, total phenols were found to exceed the NYSDEC surface water standards.

In November 1996 and October 1997, NYSDEC collected surface sediment samples from Geddes Brook west and northwest of the Stanton Foundry property. Sediment samples G3,

G4, and G5 (of the 1996 sampling event), and samples G106 and G107 (of the 1997 sampling event) will be considered in this Site Summary Report as they are the locations closest to the facility. According to NYSDEC's field notes of the October 1997 sampling, the sample at location G106 was collected in Geddes Brook at the mouth of a "ditch which discharges to Geddes between G4 and G5" (NYSDEC, 1997). The ditch is not shown on the site maps that were available for review, but it is possible that the ditch conveys wetland overflow from the foundry's property to Geddes Brook. Sediment sample G107 was collected upstream of both G106 and G5, at a location less than 500 feet south of G106. Based on the relative location of Stanton Foundry, and with the assumption that the ditch referenced in the field notes conveys drainage from the Stanton Foundry wetland, it can be estimated that Samples G107 and G5 were upstream of the site, G106 was at the wetlands discharge point, and samples G4 and G3 were downstream of the site (and upstream of the Old Erie Canal). It should be noted that in the Frazer & Jones response to the NYSDEC/USEPA Joint Request for Information, a tributary to Geddes Brook was identified which ran through the Frazer & Jones property. It is possible that this tributary flows through the Stanton Foundry wetland area as well.

In June 2000, NYSDEC collected surface sediment samples from Geddes Brook west and southwest of the Stanton Foundry Landfill. Sediment samples B395-06 and B395-07 (as identified by NYSDEC) will be considered in this section as they are the locations closest to the facility. Based on a NYSDEC sketch of the sample locations, it seems that location B395-06 is slightly upstream of the Stanton Foundry Landfill, and location B395-07 is adjacent to the landfill, approximately 75 feet downstream of B395-06.

The only contaminant that is of particular concern at this facility, as discussed in Section 5.1, is phenols. The NYSDEC sediment screening criterion for benthic aquatic life chronic toxicity for total unchlorinated phenols is 0.5 mg/kg (parts per million or ppm) on an organic-carbon basis which corresponds to 5.0 µg/kg (parts per billion or ppb) on a dry-weight basis for sediment containing 1% organic carbon (NYSDEC, 1999). For total chlorinated phenols, the criterion is 0.6 ppm (organic carbon) or 6.0 ppb (dry weight) for

sediment with 1% organic carbon. Phenol and chlorinated phenols were not detected in the five 1996 and 1997 NYSDEC sediment samples (G3, G4, G5, G106, and G107), with detection limits ranging from 430 ppb to 1,600 ppb. Sample locations B395-06 and B395-07 were only tested for inorganic contaminants, and it should be noted that the upstream location's (B395-06) inorganic compound concentrations and those at the location adjacent to the Stanton Foundry Landfill (B395-07) did not vary appreciably. Except for silver, concentrations of metals at both stations were less than NYSDEC's Severe Effect Levels (SELs). Silver was detected adjacent to the landfill at a concentration (2.9 mg/kg) slightly above the NYSDEC SEL (2.2 mg/kg). Also, concentrations of cadmium, copper, nickel, and silver exceeded NYSDEC's Lowest Effect Levels (LELs). For these metals, the percent increases in concentration from upstream (B395-06) to downstream (B395-07) were less than 40 percent.

Outdoor materials storage and handling facilities may serve as sources of off-site contamination if stormwater comes into contact with stored or spilled contaminants. Since the facility's material storage and loading/unloading operations were not described in the Stanton Foundry mailing, their environmental impacts, if any, cannot be assessed. The site map (Mailing No. 1, p. 000014) does indicate the existence of an outside storage area, to the west of the foundry building (north and south of the garage). The map notes that metal flasks and gravel were stored in this area. Information on these flasks was not provided in the foundry's description of their operations, so their potential for being a source of contamination is unknown.

Stanton Foundry did not provide a copy of a SPDES permit for their facility, and did not state whether such a permit was ever required. A description of overlying landfill vegetation was not included in the documents that were available for review. There was no indication in the mailings that industrial process wastewater was ever discharged to on-site or off-site surface waters.

3.3 Groundwater

Groundwater beneath the Stanton Foundry site can be contaminated directly by spills or from leaching of contaminants from the facility's storage and disposal activities. Groundwater data were provided from two on-site groundwater monitoring wells from sample events in September and October 1988. The only analyte measured was total phenols, and its concentration was found to exceed the NYSDEC groundwater effluent standard for phenolic compounds as noted in Section 4.2. Sample locations are shown on Figure 6 herein.

Details about Stanton Foundry's waste and chemical storage, aside from the on-site landfill, were not available for review. Inadequate containment could create a risk of site contamination and off-site transport. Assuming there have been no other releases, it may be inferred that the material historically disposed on-site is this facility's only potential source of contamination to groundwater.

On the survey map that was provided, it was indicated that there is a Niagara Mohawk Power Corporation easement that intersects the site in a north-south direction. It is possible that the easement provides a pathway for shallow groundwater transport.

3.4 Air

Air emissions represent a local source of contaminants to the atmosphere with potential deposition to the ground surface and subsequent transport to Geddes Brook via surface runoff. Before ending their on-site operations, Stanton Foundry had seven permitted air emission sources operating under NYSDEC permits (Mailing No. 1, pp. 000057-000064). Four of these emission sources (Emission Points 1, 3, 4, and 7) operated with permits until operations were discontinued in 1988, and three were removed from service as of October 1987 (Emission Points 2, 5, and 6). NYSDEC notices of violations, if any, were not available for review, however, it was noted in the permit for Emission Point 7 that hourly emissions (7 lbs/hr) exceeded permissible levels (0.3 lbs/hr) (Mailing No. 1, p. 000061).

Permits for all seven emission sources were provided in the foundry's mailing except Emission Points 5 and 6. A map showing the locations of these emission sources was not available for review.

The permitted contaminants that were emitted to the air from the foundry included dust, iron oxide, and naphthalene. The types of permitted contaminants from Emission Points 3 and 4 were not legible in the NYSDEC permits that were available for review. Dust and/or fumes, or particulates, from the facility would have been generated by machining, grinding, and welding operations, and consisted mostly of iron or iron oxide (castings were over 85% iron) (Mailing No. 1, p. 000043). The MSDS that was provided mentions that flame cutting, arc gouging, and welding on iron castings would produce iron oxide fumes, however, it was not indicated in the materials available for review whether any of these three operations were ever conducted at the Stanton Foundry facility.

3.5 County Sewer System

As noted earlier, Stanton Foundry indicated that the generated wastes were not "disposed of, directly or indirectly, into Onondaga Lake" or into the municipal sewer system (Mailing No. 1, p. 000002). Based on Stanton Foundry's interview of a former employee, it was indicated that "based on Mr. Fizer's recollection, there were no floor drains in any manufacturing area at the facility and process waste was not disposed of into the sanitary sewer system" (Mailing No. 1, p. 000006). Sanitary waste from the facility's locker/wash room area was the only waste known to have been discharged to the sanitary sewer system. The Village of Solvay sanitary sewer line is shown on the site map that was provided by Stanton Foundry (Mailing No. 1, p. 000013).

It was not indicated whether it was possible that some stormwater runoff drained into the municipal storm sewers.

4.0 LIKELIHOOD OF RELEASE OF HAZARDOUS SUBSTANCES TO THE LAKE SYSTEM

4.1 Documented Releases

Documented Spills

Stanton Foundry operated an on-site landfill between 1963 and 1988 and a “predecessor in interest” operated the landfill from 1941 to 1963, during which time waste sand material and relatively small quantities of iron and limestone slag waste from the cupola melting process were disposed in a landfill located between the foundry building and Geddes Brook. Approximately 50 tons of waste sand per week and 122,000 tons total were disposed from 1941 to 1988 (Mailing No. 1, pp. 000005 and 000007). The landfill which is shown on Figure 6 herein, covers approximately 3.4 acres, and contains an estimated 90,600 cubic yards of material (Mailing No. 1, p. 000018).

On August 26, 1991, No. 2 fuel oil was observed leaking from a 2,000-gallon storage tank that is assumed to be the 2,000-gallon underground storage tank discussed earlier in Section 2.3. The spill, which consisted of approximately 20 gallons, contaminated the underlying soil, and was reported on a NYSDEC Initial Spill Report Form (Spill No. 9105724). The contaminated soil was removed on August 27, 1991, the day after the spill was observed, and staged on-site for disposal. The disposal location was not specified.

On May 28, 1987, in a letter from the US Army Corps of Engineers to Stanton Foundry, it was noted that approximately 17 cubic yards of foundry sand was “inadvertently pushed over the edge of a mound of pre-existing foundry sand that was about 25 feet high” into a wetland area (Mailing No. 1, pp. 000067, 000070-000071). The new fill area was approximately 300 square feet in area (120 feet long and 2.5 feet wide) and 1.5 feet in height as indicated on the sketches on pages 000069 and 000070. The May 28, 1987 letter to Stanton Foundry also noted that the wetland area that was filled in contained several plant species, and served as

a habitat to wildlife such as muskrats (Mailing No. 1, p. 000067). The exact date of the placement of this “new fill” was not indicated in the letter. Removal of the spilled foundry sand and site restoration was completed as of June 19, 1987, when the Corps of Engineers performed a site inspection. It was also indicated in the May 1987 Corps of Engineers letter that the “pre-existing foundry sand was placed before the need for a Department of the Army permit for filling in this wetland and therefore does not require authorization” (Mailing No. 1, p. 000068).

Ongoing/Recent Releases

Stanton Foundry discontinued its operations at 3004 Milton Avenue in 1988 and the facility was demolished in 1991. Thus, ongoing or recent contaminant releases have not been identified.

4.2 Threat of Release to the Lake System

4.2.1 Extent of Site Contamination

Based on the material submitted, the only potential on-site contamination exists to the west of the foundry building, within Stanton Foundry’s landfill that covers approximately 3.4 acres. Contamination resulting from a leaking storage tank was apparently remediated in 1991. Although NYSDEC reviewed environmental sampling results that were collected by O’Brien & Gere in 1988, and subsequently determined (letter dated December 8, 1988) that additional sampling was required, the results of this additional sampling (if the sampling was performed) were not available for review. These data should be examined before a complete analysis of the extent of site contamination can be performed. Historic aerial photographs of the area, if available, would provide a perspective to the growth of the landfill site and the extent of potential contaminant migration.

Soil

Waste sand samples were collected by Stanton Foundry personnel on March 25, 1988, and the laboratory results, dated April 13, 1988, are presented in Table 2 herein in Section 2.3 (Mailing No. 1, pp. 000034-000035). Sand samples were also collected by O'Brien & Gere on August 3, 1988. One soil sample was also collected by O'Brien & Gere from the bank of the drainage ditch. These data are presented in Table 1 herein in Section 2.3. Sample locations are indicated on Figure 6 herein.

The six waste sand samples (Samples A through F) that were collected by Stanton Foundry personnel on March 25, 1988 were analyzed for EP Toxicity metals and total phenols (see Table 2). Metal concentrations for arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver were found to be below detection limits except for arsenic (0.004 mg/L in Sample F), barium (0.5 mg/L in Sample A, and 0.4 mg/L in Sample B), and mercury (0.0065 mg/L in Sample F). As indicated in Table 2, these EP Toxicity detections of arsenic, barium, and mercury are less than the current Toxicity Characteristic Leaching Procedure (TCLP) regulatory limits (5 mg/L, 100 mg/L, and 0.2 mg/L, respectively). Total phenol concentrations ranged between 1.8 mg/kg and 23 mg/kg (ppm). For phenol, the NYSDEC Recommended Soil Cleanup Objective (RSCO) is 0.03 mg/kg (NYSDEC, 1994). One of the five landfill sand samples that were analyzed by O'Brien & Gere in August 1988 (discussed below) measured both total phenol (2.4 mg/kg) and phenol concentrations (0.88 mg/kg), and it was found that the phenol concentration was approximately 37% of the total phenol concentration (Sample S-4). If this 37% ratio is relatively consistent throughout the landfill, then the phenol RSCO (0.03 mg/kg) is exceeded in the foundry's landfill area. The range of total phenol concentrations (1.8 mg/kg to 23 mg/kg) would translate to concentrations of phenol ranging from 0.7 mg/kg to 8.5 mg/kg, assuming a phenol to total phenol concentration ratio of 0.37.

Six samples were obtained by O'Brien & Gere on August 3, 1988, four of which (Samples S-1, S-2, S-3, and S-5) were collected at the surface of the landfill, one (Sample S-4) was

collected two feet below the surface, and one (Sample S-6) was collected from the surface of a “bank of the drainage ditch which passes through Stanton’s property” which Stanton Foundry considered a representative soil background sample (Mailing No. 1, p. 000015). The landfill areas in the vicinity of Samples S-1 and S-5 were described in the sample log (Mailing No. 1, p. 000026) as runoff and bank areas. Sample S-2 was collected from the “active disposal area” (Mailing No. 1, p. 000015). The disposal area in the vicinity of sample S-2 was described in the sampling log as a “new area,” whereas the area of samples S-3 and S-4 (both taken from the same location) was described as “old” (Mailing No. 1, p. 000026). This implies that the waste in the vicinity of Samples S-3 and S-4 likely contains waste that has had more time to migrate off-site by either erosion or leachate transport to groundwater.

Soil and waste sand samples that were collected by O’Brien & Gere were analyzed for total phenols, EP Toxicity metals (arsenic, barium, cadmium, chromium, mercury, lead, selenium, and silver), and at one of the locations (Sample S-4), acid extractable and base neutral organics (SVOCs), and PCBs as well (see Table 1). For the five landfill waste samples (Samples S-1 through S-5), metals were not detected in the EP Toxicity tests, and the total phenol concentration ranged between 0.62 mg/kg and 21 mg/kg (Mailing No. 1, p. 000022). The PCB concentration for Sample S-4 was found to be below detection limits, and the only two organic compounds which were measured above detection limits were bis(2-ethylhexyl)phthalate (or BEHP) at 0.34 mg/kg and phenol at 0.88 mg/kg. The sample that was collected as a representative background soil sample (Sample S-6) contained a total phenol concentration of 0.2 mg/kg, and EP Toxicity metals were also not detected. The NYSDEC RSCOs are 50 mg/kg for BEHP which was not exceeded in Sample S-4, and 0.03 mg/kg for phenol. Total phenol concentrations in the waste samples were detected at levels significantly higher than the background soil level (0.2 mg/kg), and exceeded the background level by a factor between 3 and 100 (0.62 mg/kg and 21.0 mg/kg). It should also be noted that the highest concentration of total phenols (21.0 mg/kg) was detected in the only sample (S-2) from the active landfill area (in 1988). As indicated by O’Brien & Gere (Mailing No. 1, p. 000017), these data “suggest that biodegradation and/or physical mechanisms such as leaching have reduced total phenolic levels of the sand.” If it is assumed that the sand waste

consistently has a 37% relationship between phenol and total phenol, then the phenol NYSDEC RSCO was exceeded for all waste sand samples. The NYSDEC RSCO for phenol is based on a soil cleanup objective to protect groundwater quality, so it is likely that groundwater beneath this area is also impacted.

It should be noted that although the Stanton Foundry was used as a gray iron casting manufacturing facility, and waste iron was regularly disposed in the landfill over a period as long as 48 years (1941 to 1988), iron was notably not analyzed in the Stanton Foundry Landfill characterization (Mailing No. 1, p. 000016).

Groundwater

Two groundwater monitoring wells were installed in September 1988, one of which is hydraulically upgradient from the landfill area and is approximately 16.5 feet deep, and the second which is within the fill area and is 44 feet deep. Groundwater grab samples were collected from the wells on September 27, 1988 and October 3, 1988, and were analyzed for total phenols. Total phenols in the upgradient well (MW-1) were less than the 0.001 mg/L detection limit, however, groundwater from the landfill well (MW-2) had total phenol concentrations of 0.01 mg/L (September 27) and 0.005 mg/L (October 3) (Mailing No. 1, p. 000017). Stanton Foundry noted that the first reading of 0.01 mg/L was possibly inaccurate because the sample was collected only one day after well installation and development, whereas the second sample was collected about a week after well development. Turbidity data during these two sample events were not provided. The NYSDEC groundwater standard for phenolic compounds (total phenols) is 1 µg/L, or 0.001 mg/L, and was exceeded by both well measurements. Groundwater data for other parameters were not included in the information reviewed.

If the groundwater flow is consistent with surface contours (see Figure 2), then groundwater is expected to flow to the north and northwest based on ground surface contours. In response to the O'Brien & Gere report, NYSDEC indicated that a downgradient well network would

have to be installed along the boundary of the landfill to determine whether contaminated leachate is migrating from the source (NYSDEC, December 8, 1988). These downgradient results would then determine whether a “cap is required for the foundry sand.” NYSDEC noted in the December 8, 1988 letter to O’Brien & Gere that this monitoring well network should be installed in order to comply with NYSDEC “regulatory requirements for closure.” No information or data related to this additional well network was included in the material available for review. It is also not known whether the waste sand landfill was capped as suggested by NYSDEC.

As noted earlier in this section, foundry operations generated metal wastes that were regularly disposed in the on-site landfill, however, metals were not analyzed in the groundwater sampling that was conducted. It is recommended that a complete suite of analytes be measured, including metals such as iron, to assess historic groundwater contamination.

Surface Water/Sediment

Two surface water samples (Samples W-1 and W-2) were collected by O’Brien & Gere from near the toe of the Stanton Foundry Landfill on August 3, 1988. The samples were analyzed for total phenols and total metals. Total phenols were detected at concentrations of 0.01 mg/L and 0.005 mg/L. The NYSDEC ambient water quality standards for phenolic compounds (total phenols) is 1 µg/L (0.001 mg/L) for total chlorinated phenols and 5 µg/L (0.005 mg/L) for total unchlorinated phenols, which were both exceeded. The metals that were analyzed (arsenic, cadmium, chromium, mercury, nickel, lead, and zinc) were determined to be below detection limits, except zinc which had a concentration of 0.04 mg/L in Sample W-1. The NYSDEC standard for zinc for the protection of aquatic life from chronic effects is 82.6 µg/L, or 0.083 mg/L, assuming a hardness of 100 mg/L in freshwater, which was not exceeded in the O’Brien & Gere sample (40 µg/L). One of the samples (W-1) was also tested for acid extractable and base neutral organics. Both BEHP and phenol were not detected (less than 0.01 mg/L) in this sample.

A wetland area exists adjacent to the on-site landfill and extends to the north and west of the facility, along Geddes Brook. The historical soil contamination discussed earlier (waste sand and iron and limestone slag waste) serves as a potential source of stormwater runoff contamination to off-site locations from the wetland into Geddes Brook. Hydraulic characteristics of the wetland, such as water retention times and water surface areas, which can influence the rate of contaminant removal by such processes as sedimentation and decomposition (Hammer, 1992), were not indicated in the documents that were available for review. It was also not indicated in the available information whether a SPDES permit was ever issued for this facility.

NYSDEC collected five sediment samples from Geddes Brook west and northwest of the Stanton Foundry facility in November 1996 and October 1997. As indicated in Section 3.2, it is inferred that two locations sampled were upstream of a tributary that possibly conveyed surface water flow from the Stanton Foundry wetland, one location was at the discharge point of this tributary into Geddes Brook, and two locations were downstream. Phenol and chlorinated phenols were not detected in these five samples. Phenols were not analyzed in the two surface sediment samples collected in Geddes Brook adjacent to the landfill by NYSDEC in June 2000. A discussion of the inorganic results from these two samples is provided in Section 3.2.

Sewer Discharges

According to Stanton Foundry, industrial wastewater associated with the facility's operations was never discharged to the OCDDS sanitary sewer system. Furthermore, no waste spills were noted to have occurred to the sewer system. Based on the information that was available for review, the only wastes that have been discharged to the sewer system were sanitary wastes.

4.2.2 Migration Potential of Contaminants

Stanton Foundry has indicated that the only wastes that have been disposed on-site were landfilled to the west of their manufacturing building. Although this waste was characterized as non-hazardous, sampling has shown that phenol concentrations in the landfilled waste (see Tables 1 and 2) exceeded NYSDEC guidelines for soil, surface water, and groundwater. This waste, which was disposed over a 48-year period (1941 to 1988), has likely been the source of off-site phenol migration by leachate transport to groundwater, surface water runoff, and possibly air transport. Structures to divert, contain, or limit off-site migration of the landfilled contaminants such as a landfill liner, swales, or berms were not indicated in the documents that were available for review. A general vegetative coverage plan was not contained in the material available for review. Vegetative coverage would limit landfill soil erosion, and the corresponding exposure of the underlying waste and reduce the potential for contaminating surface water runoff.

Descriptions of the site's materials storage facilities and handling procedures were not provided. Inadequate storage and handling procedures could have presented an additional risk of on-site contamination.

5.0 POTENTIAL FOR ADVERSE IMPACTS TO LAKE SYSTEM DUE TO A RELEASE OR THREAT OF A RELEASE

5.1 Hazardous Substance Characteristics

Stanton Foundry no longer operates its iron casting foundry at the Milton Avenue location which was demolished in 1991. The only potential release of hazardous wastes from the site in the future would therefore be from historical spills that might have impacted site soils/groundwater, or from the waste that was landfilled on its property. Stanton Foundry indicated that the waste that it had disposed in its on-site landfill consisted mainly of waste sand and a relatively small amount of iron and limestone slag wastes. It was determined to be non-hazardous industrial waste (Mailing No. 1, p. 000005). Although samples of the facility's paint waste and metallic shotblasting waste (disposed off-site) were not available for review, it is possible that these materials could be classified as hazardous. Spills of either the painting or shotblasting waste were not indicated in the documents that were reviewed.

As noted earlier in Section 4.2, during a landfill waste sampling event that was conducted by O'Brien & Gere in 1988, elevated phenol concentrations were present in both waste, surface water, and groundwater samples. It has therefore been determined that phenol is a potential contaminant of concern. As noted in the December 8, 1988 NYSDEC letter to Stanton Foundry, additional groundwater monitoring, if performed, would be required to assess the extent of off-site phenol migration (NYSDEC, 1988). Phenol should be considered a potential contaminant of concern until the results of this monitoring, if performed, can be reviewed in detail. A discussion of the characteristics of phenol is provided below.

Mobility

Sorption and volatilization are not considered important transport processes for phenol, a very weak acid which exhibits a high water solubility and a moderately low vapor pressure.

Phenol released to soil tends to leach to groundwater due to its low soil sorption partition coefficient (USDHHS, 1988).

Toxicity

Continuous exposure to high concentrations of phenol for several weeks has resulted in paralysis and severe injury to the heart, kidneys, liver and lungs, and in some cases, death. Phenol applied to the skin is a cancer promoter (USDHHS, 1988).

Persistence

Phenols in the aquatic environment are affected by photooxidation, metal-catalyzed oxidation, and biodegradation (USEPA, 1979). Biodegradation is probably the most important fate mechanism for phenol in surface water, except in instances when the concentrations are so high that significant inhibition occurs. In soil, phenol will biodegrade under both aerobic and anaerobic conditions (USDHHS, 1988).

Bioaccumulation

Based on the octanol/water partition coefficient, phenol is not expected to bioaccumulate to any extent in the aquatic environment. However, the detection of phenol in fish from Commencement Bay in Washington State indicates the potential for phenol to concentrate in aquatic organisms (USDHHS, 1988).

5.2 Quantity of Substances

Stanton Foundry estimated that approximately 50 tons of waste sand, which was the primary waste stream produced at the facility, was generated weekly and landfilled from 1941 to 1988 on Stanton Foundry property near Geddes Brook. A total of 120,000 tons of waste (or 90,600 cubic yards) is estimated to have been disposed in the landfill. Quantities generated

of the only other types of waste that were disposed on-site (iron and limestone slag waste) were not available for review. The amount of these wastes disposed in the landfill were described by Stanton Foundry as being “very small quantities” (Mailing No. 1, p. 000005), however, over the total foundry operation period of 48 years, the landfilled quantity may be significant.

5.3 Levels of Contaminants

A discussion of the extent of on-site contamination is included in Section 4.2. Limited analytical data were provided in the Stanton Foundry mailing. This includes limited waste sand, soil, groundwater, and surface water data from samples collected by Stanton Foundry employees and O’Brien & Gere in 1988. Sample results are presented herein in Tables 1 and 2. Concentrations of total phenol in waste sand/soil ranged up to 23 mg/kg, exceeding the NYSDEC RSCO for phenol of 0.03 mg/kg. Concentrations of phenol in surface water and groundwater ranged up to 0.01 mg/L (or 10 µg/L), exceeding NYSDEC surface water and groundwater standards.

5.4 Impacts on Special Status Areas

The Stanton Foundry site is in an area where direct adverse impact to regulated wetlands or protected streams is likely to occur. Geddes Brook near the site is a Class C waterbody with C(T) standards (6 NYCRR Part 895.4) and, thus, is considered a “protected stream” in this area (6 NYCRR Part 608).

According to the Syracuse West National Wetlands Inventory map (USDOI, 1978), a federal wetland exists approximately 500 feet southwest of the Stanton Foundry main building and is designated as PEM5E (Palustrine, Emergent Marsh). Geddes Brook, located adjacent to and west of the on-site landfill, is designated as R2OWH (Riverine, Lower Perennial, Open Water). A New York State freshwater wetland designated SYW 15 is located north, west, and southwest of the Stanton Foundry main building. This is the same freshwater wetland

that was discussed in Stanton Foundry's mailing that was being impacted by foundry landfill operations. The state wetland area is located within the flow path of Geddes Brook, and parts of the wetland are situated downgradient from the Stanton Foundry facility and landfill.

As of August 1996, the New York State "Natural Heritage Sensitive Element" nearest to the Stanton Foundry facility was located approximately 1 ¼ miles northwest of the site, adjacent to Ninemile Creek upstream of the confluence with Geddes Brook, and on the opposite side of Geddes Brook. Thus, it is not likely that this area would be affected by contamination from the Stanton Foundry site.

Surface water and groundwater discharges from the site could adversely affect the downgradient wetlands and Geddes Brook. Only limited surface water and groundwater data pertaining to the site were included in the documents reviewed, however both revealed elevated phenol concentrations. Additional groundwater sampling is recommended to assess the off-site migration of contaminated leachate from the foundry landfill (unless supplemental data exist that were not previously provided).

6.0 SUMMARY OF CONCERNS

Based on the data and information provided by Stanton Foundry, the following concerns are identified:

- Landfilled waste was disposed at the Stanton Foundry facility for approximately 48 years in an area that is directly adjacent to a NY State freshwater wetland. Samples of this waste indicated elevated phenol concentrations. Based on an inspection conducted by the US Army Corps of Engineers, the landfill was observed to extend very close to Geddes Brook (within approximately 20 feet). Phenols were not detected in the surface sediment samples collected by NYSDEC in 1996 and 1997.

Iron concentrations in the landfilled material were not measured, however, this is a likely contaminant since the facility served as an iron casting manufacturer, and iron waste was regularly disposed in the landfill. Future sampling events should include iron as an analyte and the complete suite of inorganics.

- The ecological health of the regulated freshwater wetlands adjacent to the Stanton Foundry Landfill should be assessed by wetland soil/sediment and surface water sampling, and possibly a wetlands characterization. Wetland remediation or mitigation may be required based on the sampling results to improve the viability of the wetland as a wildlife and vegetative habitat and as a natural surface water treatment system.
- As noted by NYSDEC in a December 8, 1988 letter to O'Brien & Gere, additional groundwater sampling should be conducted to assess whether there has been off-site migration of the landfill leachate. It is recommended that future groundwater sampling events include metals in the analytes that are measured. Elevated phenol concentrations in the groundwater indicate that remedial actions, such as the placement of a landfill cap, should be considered. In the 1988 letter, NYSDEC

indicated that a landfill cap may be necessary based on supplemental sampling. The results of this supplemental sampling, if available, were not included in the information reviewed. It was also not indicated whether the landfill has since been capped.

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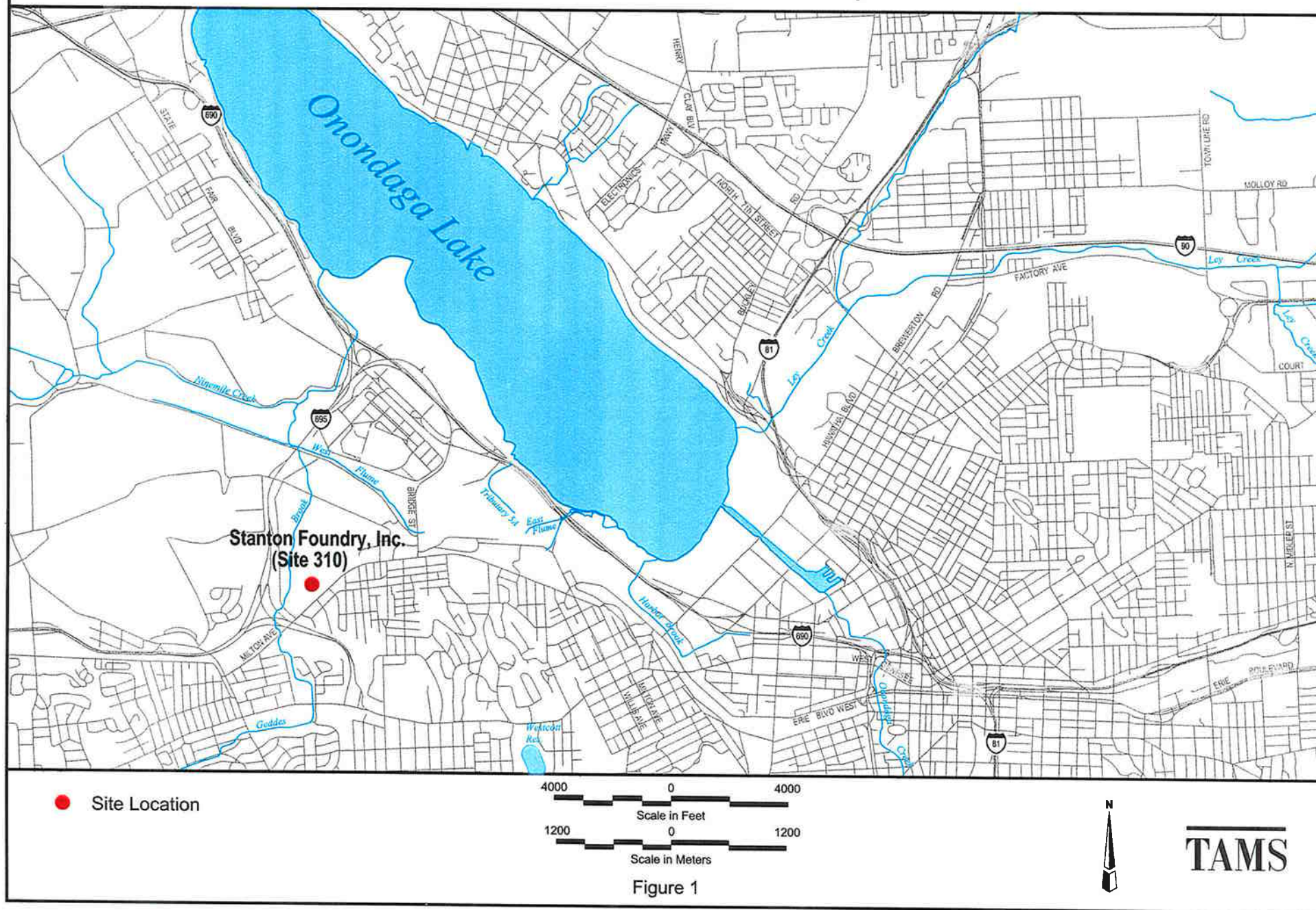
Figure 3: US Army Corps of Engineers Sketch, Stanton Foundry, Inc.

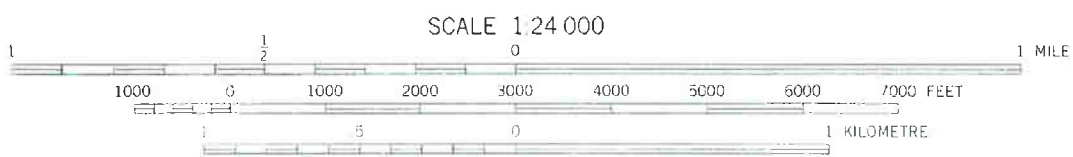
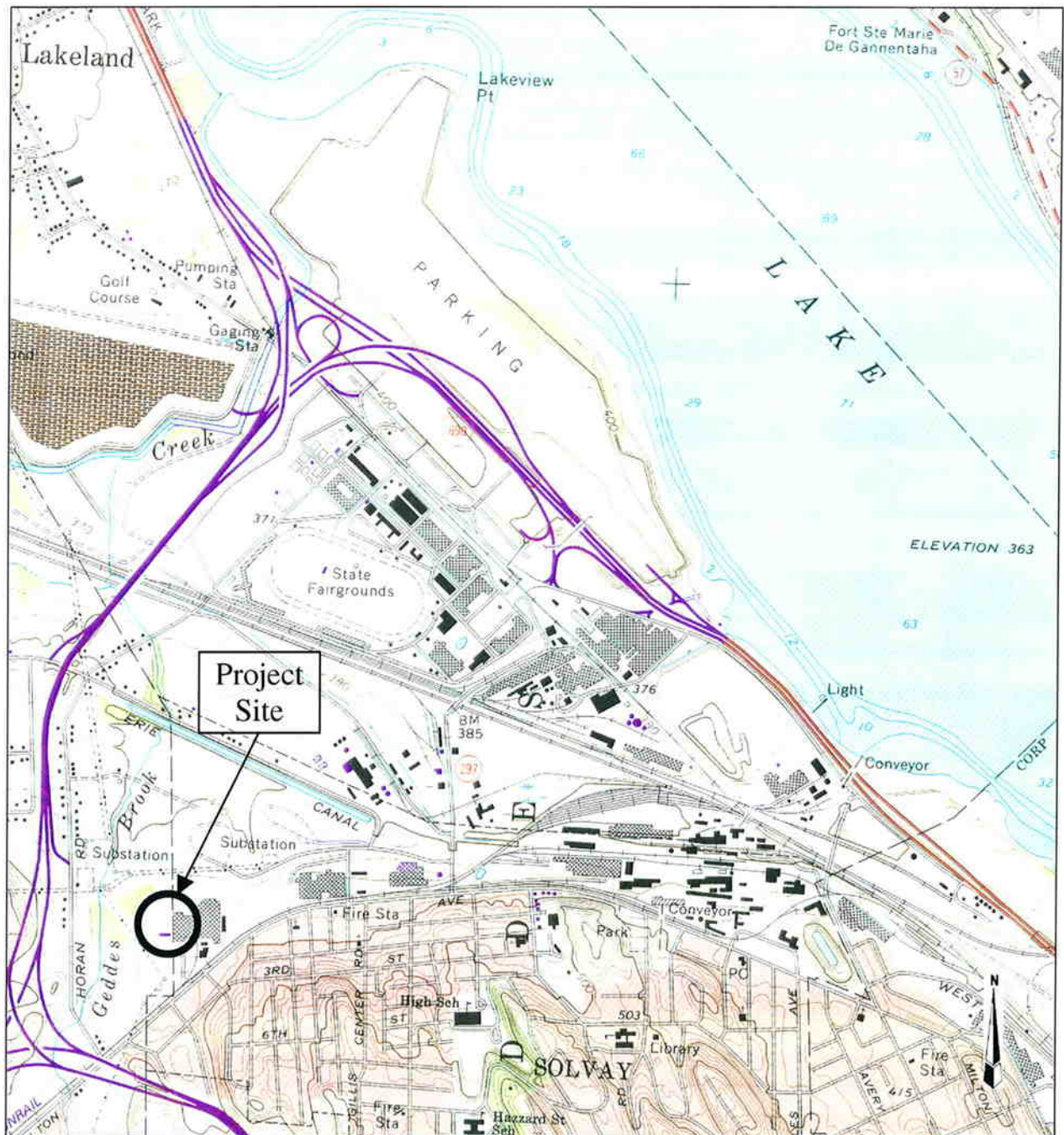
Source: Stanton Foundry, Mailing No. 1, p. 000069

Figure 4: Facility Map, Stanton Foundry, Inc.

Source: Stanton Foundry, Mailing No. 1, p. 000014

Site Location: Stanton Foundry, Inc.





CONTOUR INTERVAL 10 FEET
 NATIONAL GEODETIC VERTICAL DATUM OF 1929
 DEPTH CURVES AND SOUNDINGS IN FEET—DATUM IS 363 FEET IN ONONDAGA LAKE



QUADRANGLE LOCATION

United States Geological Survey
 Syracuse West Quadrangle
 Onondaga County, New York

Figure 2

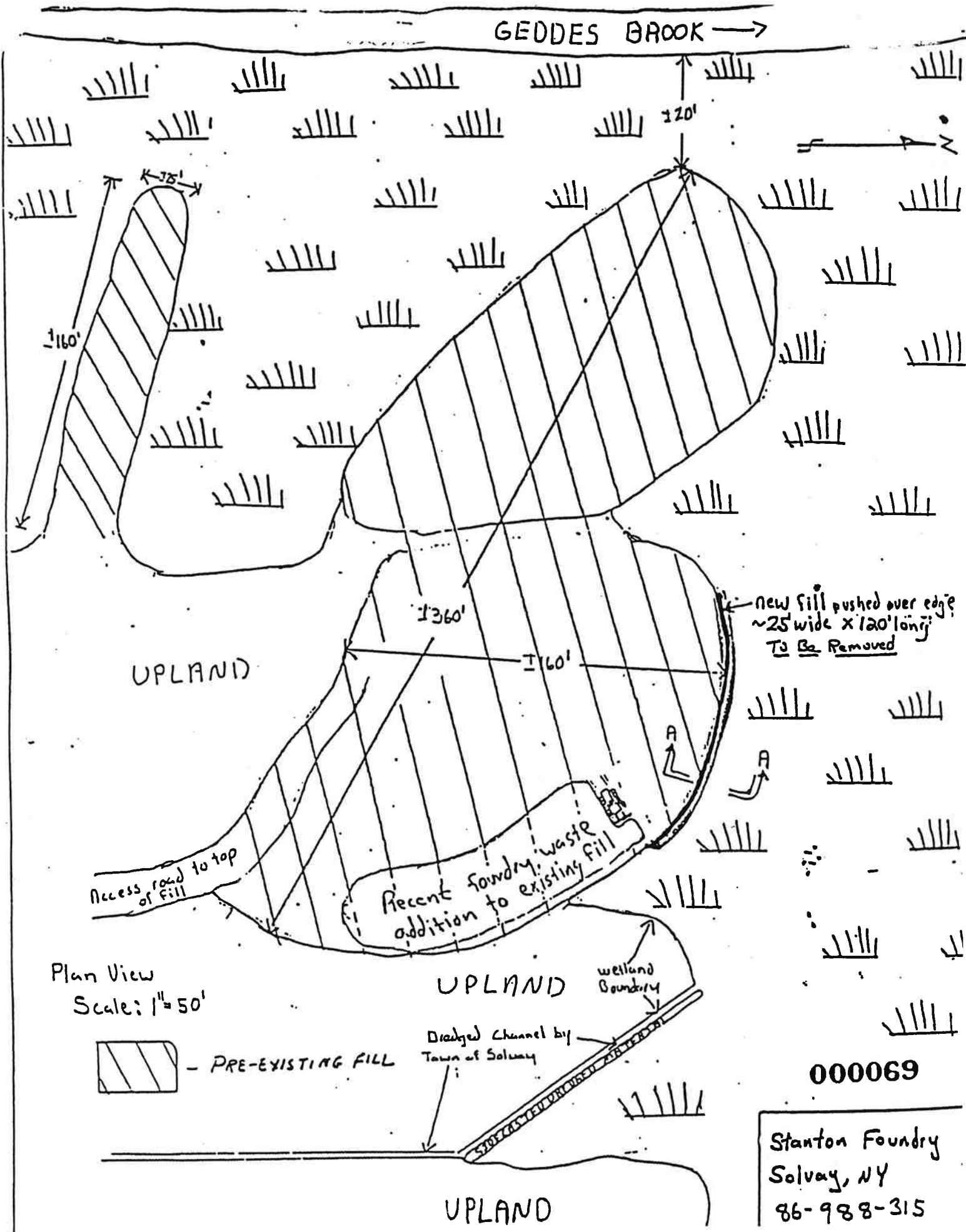


Figure 3: US Army Corps of Engineers Sketch. Stanton Foundry, Inc.

Source: Stanton Foundry, Mailing No. 1, p. 000069

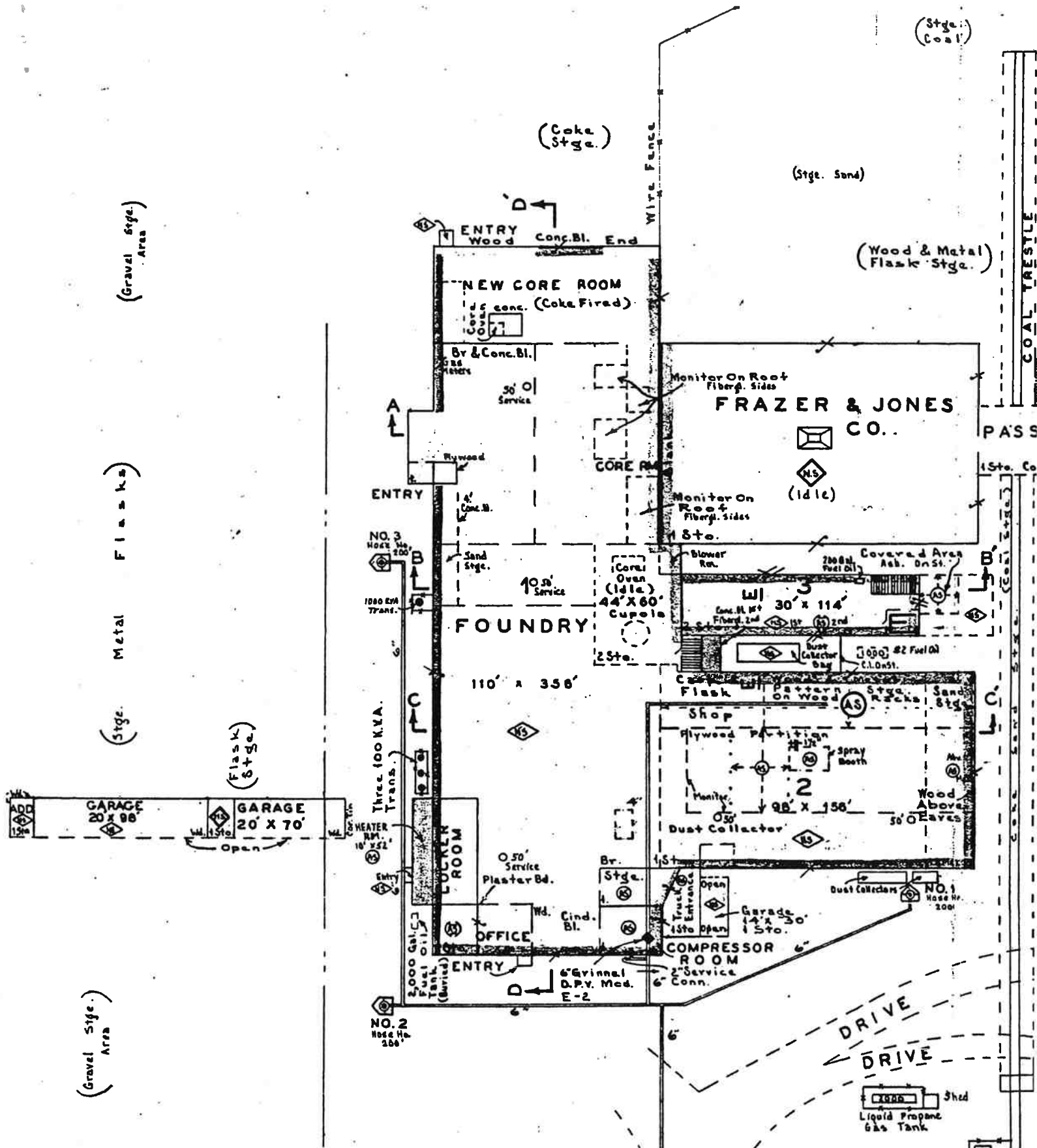


Figure 4: Facility Map, Stanton Foundry, Inc.
Source: Stanton Foundry, Mailing No. 1, p. 000014



Figure 5: Aerial Photograph (Date Unknown), Stanton Foundry, Inc. and Surrounding Area

WETLANDS

